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# VCE UNITS INFORMATION

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## VCE Biology Units 1 and 2

### CONTENT

#### Unit 1

In this area of study, students examine the structure and functioning of cells and how the plasma membrane contributes to survival by controlling the movement of substances into and out of the cell.

Aspects of this unit include: investigating cell size, structure and function, how substances enter and leave cells, developing an understanding of energy transformations in cells and understanding that all individual organisms are faced with the challenge of obtaining nutrients and water, exchanging gases, sourcing energy and having a means of removal of waste products. Being able to explain that organisms develop adaptations which facilitate these processes and aid survival.

#### Unit 2

In this area of study, students consider the need for the cells of multicellular organisms to multiply for growth, repair and replacement.

Aspects of this unit include: an examination of the main events of the cell cycle in prokaryotic and eukaryotic cells, developing a familiarity with the key events in the phases of the cell cycle, and understanding the importance of the processes involved in a cell's preparation for cell division. Students describe the production of gametes in sexual reproduction through the key events in meiosis and explain the differences between asexual and sexual reproduction in terms of the genetic makeup of daughter cells. Students also consider the role and nature of stem cells, their differentiation and the consequences for human prenatal development and their potential use to treat injury and disease.

### OUTCOMES

#### Unit 1

- Students should be able to investigate and explain how cellular structures and systems function to sustain life
- Students should be able to explain how various adaptations enhance the survival of an individual organism
- Students should be able to investigate the relationships between organisms that form a living community and their habitat, and analyse the impacts of factors that affect population growth
- Students should be able to design and undertake an investigation related to the survival of an organism or species, and draw conclusions based on evidence from collected data